

# A Taxonomy of Integration Interventions between Health Care and Public Health

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#### Abstract

Integration among health care professionals, health care systems, and public health organizations to improve population health has recently emerged as a policy priority for federal health and public health agencies. A large gap exists, however, between current policy and program implementation efforts and the existing evidence for integration interventions. The challenges of research into integration effectiveness include lack of a standardized definition of integration and lack of a taxonomy to allow grouping of similar interventions that helps to facilitate an understanding of their effectiveness. We address these challenges and advance research into integration. Drawing from prior evidence syntheses of integration interventions, we provide a recommended definition and a classification scheme for describing and grouping like interventions. Our work can benefit researchers engaged in generating evidence for integration interventions and policy makers; it will help to ensure that the integration policy promoted by health and public health agencies is supported by science.

#### Introduction

Integration among health care professionals, health care systems, and public health organizations to improve population health has recently emerged as a policy priority for federal health and public health agencies. A large gap exists, however, between current policy and program implementation efforts and the evidence for integration interventions.

This work addresses two of the challenges for research on the effectiveness of integration interventions: the **need for a standard definition** and the **need for a taxonomy** to describe integration interventions.

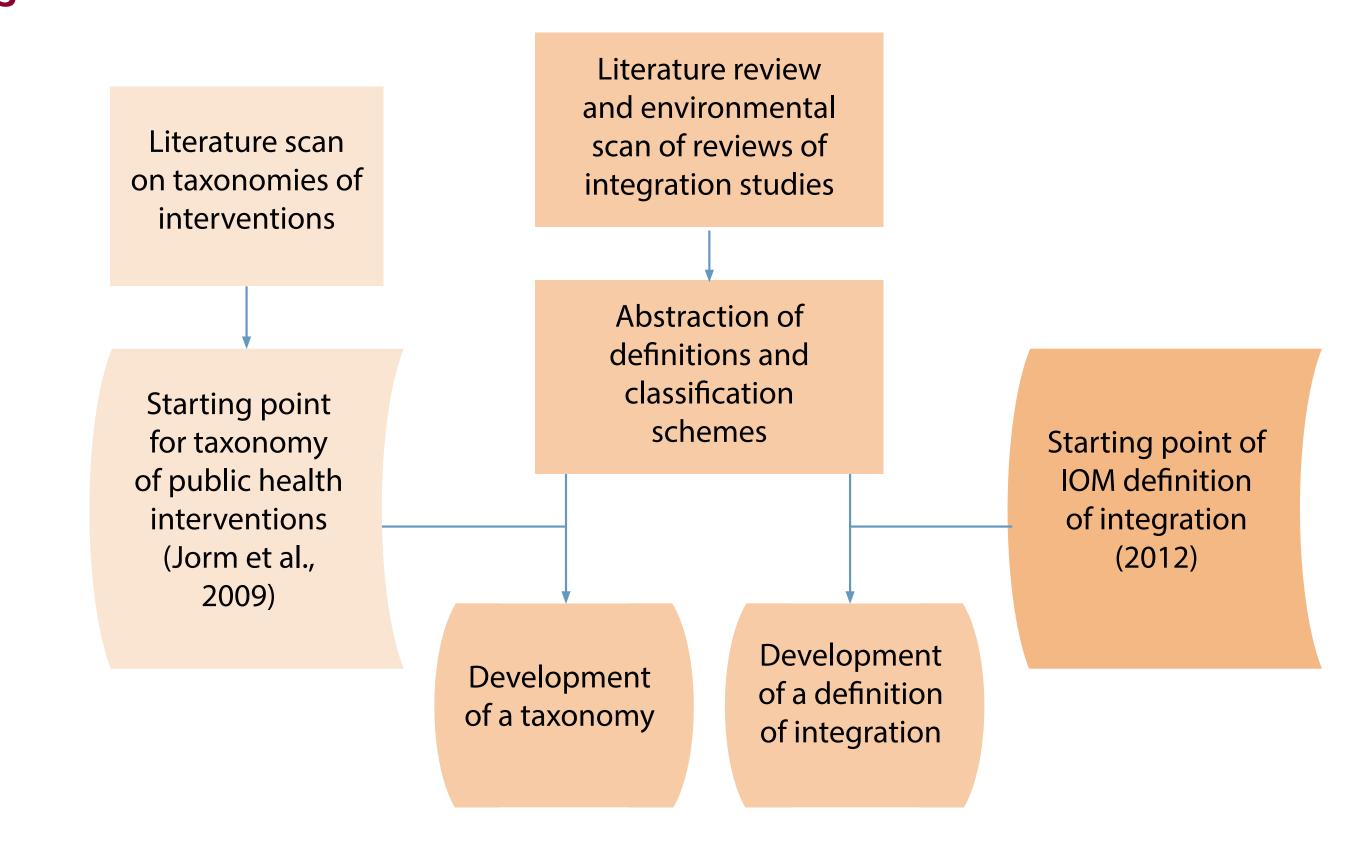
#### Methods

Figure 1 shows the process of our environmental scan and gray literature review of integration interventions, a scan of the literature for taxonomies of interventions, and information that contributed to our development of an integration definition and the taxonomy. Table 1 shows search terms of our literature search, and Table 2 the inclusion and exclusion criteria. Additional features of our methods are:

- For the literature review, we included only works that identified and synthesized information about a set of integration interventions; thus, we excluded single studies, editorials, or commentaries.
- For the environmental scan, we reviewed a set of 11 documents identified in a gray literature scan in summer 2014. We supplemented this body of work with a review of websites from nine organizations and agencies most involved with integration interventions: Centers for Disease Control and Prevention, Health Resources and Services Administration, Agency for Healthcare Research and Quality, Centers for Medicare & Medicaid Services, American College of Preventive Medicine, American Medical Association, American Public Health Association, Association of State and Territorial Health Officials, and National Association of City and County Health Officials. We searched each of these sites twice, using the terms "linkages" and "integration," and reviewed at least the first 50 results for each search.

# Methods (continued)

#### Figure 1. Process for Literature Review and Environmental Scan



#### **Table 1**. Search Terms for Literature Review

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#1 "community health services/organization and administration" [MAJR] AND "delivery of health care, integrated" [MeSH Major Topic]

AND

#2 "Public Health/methods" [MAJR]) AND "Cooperative Behavior" [MAJR]) AND "Primary Health Care/organization and administration" [MAJR]
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#### **Table 2**. Inclusion and Exclusion Criteria for Studies

Inclusion Criteria	Exclusion Criteria
Review of multiple interventions	Single studies, editorials, commentaries
Includes an abstract (for published literature)	No abstract
Studies conducted in high-income countries (using World Bank income categorization) <sup>18</sup>	Studies conducted in low- or middle-income countries
Includes specific descriptions of organization types	Does not include any specific descriptions of organization types
Health care delivery organizations must be one of the two organizations participating in an intervention; the second must be a public health or community-based organization	The second organization is not a public health organization (either governmental or community-based)(e.g., a social service, mental health, or second health care delivery organization)

From these works, we abstracted two types of information: (1) the definition of integration used and (2) any taxonomy or classification of the interventions.

To **develop our definition** of integration, we used as our starting point the definition in the 2012 Institute of Medicine (IOM) report, which is now widely used ("integration of primary care and public health" is "the linkage of programs and activities to promote overall efficiency and effectiveness and achieve gains in population health").<sup>1</sup> Elements or phrases found in the definitions that differed from the IOM definition were identified and categorized. The authors adapted the IOM definition based on these data.

To **develop our taxonomy**, with a brief scan of the literature and the Internet we identified only a single example of a comprehensive classification scheme of public health interventions,<sup>2</sup> which we used as the starting point. We developed an Excel spreadsheet with the six top-level classes from this work (functions, health issues, determinants of health, methods, settings, and resources and infrastructure) as columns; we entered each article or document reviewed as a row in the spreadsheet. We abstracted and mapped information from each of the included articles in the following ways:

- Where categories or domains of integration interventions described in the article appeared to match one of the six classes, we included that information in the same column under that heading.
- Where categories did not match one of the six domains, we created a new column.

To develop a taxonomy of integration interventions, we reviewed the mapped data and decided whether to include or revise the Jorm et al. "classes" (or in our terminology, "domains") and what new domains might be necessary. We also adapted or developed draft definitions of these domains and included or identified new examples of subdomains (subclasses in Jorm et al. terminology) for some of the domains.

#### 5. Results

Our literature search yielded 321 abstracts; we gave 6 of these publications a full-text review and ended up including 2 publications. We also included 7 documents from our gray literature search (2 of which represent the same studies as the 2 articles initially included) and an additional 2 peer-reviewed articles from a review of bibliographies of included works. **Table 3** describes the 11 included articles or websites, which represent 9 unique studies.

Medicine and public health: the power This document described a practical framework for understanding

**Summary of the Study or Source** 

#### **Table 3**. Summary of Included Works

of collaboration.  Lasker (1997) <sup>3</sup>	and implementing collaborative strategies between medicine and public health, developed from an empirical study of 414 cases.
Working together? Organizational and market determinants of collaboration between public health and medical care providers. Halverson et al. (2000) <sup>4</sup>	This study analyzed cross-sectional data on the interorganizational relationships formed among local public health agencies, community hospitals, and community health centers operating in each of 60 geographically and demographically diverse U.S. counties.
Effective clinical partnerships between primary care medical practices and public health agencies. Sloane et al. (2009) <sup>5</sup>	This study identified partnerships between public health and medicine to increase the effectiveness and efficiency of clinical care, with a particular emphasis on the aging population. The study identified 48 programs.
Scoping literature review of collaboration between primary care and public health.  Martin-Misener & Valaitis (2009) <sup>6</sup> Martin-Misener et al. (2012) <sup>7</sup>	This scoping literature review was performed to determine what is known about (1) structures and processes required to build successful collaborations between primary care and public health; (2) outcomes of such collaborations; and (3) markers of their success. The review included 114 studies published between 1998 and 2008.
Linkages between clinical practices and community organizations for prevention.  Porterfield et al. (2010) <sup>8</sup> Porterfield et al. (2012) <sup>9</sup>	This literature review and an environmental scan developed a framework for interventions that use linkages between clinical practices and community organizations to deliver preventive services (tobacco cessation, obesity, nutrition, and physical activity). The review and scan identified and synthesized 49 interventions.
Primary care and public health activities in select U.S. health centers: documenting successes, barriers, and lessons learned. Lebrun et al. (2012) <sup>10</sup>	This study of nine federally qualified health centers examined primary care and public health activities to better understand their successes, barriers encountered, and lessons learned.
Clinical-community relationships evaluation roadmap. Buckley et al. (2013) <sup>11</sup>	This targeted literature review examined existing evidence related to the effectiveness of clinical-community resource relationships for delivering selected preventive services. The review identified 27 studies and presented very brief summary findings.
Primary care and public health integration success stories. Association of State and Territorial Health Officials (ASTHO), 2014 <sup>12</sup>	This website (clearinghouse) of primary care and public health integration success stories includes stories submitted via an online form on the ASTHO website and links to stories collected from other partners working in this field.
A practical playbook: success stories. de Beaumont Foundation et al. (2014) <sup>13</sup>	This web-based resource, A Practical Playbook, features integration stories (approximately 35) that describe primary care and public health partnerships or broader partnerships that contribute to population health improvement.

#### **Definition of Integration**

Three key elements of the definitions emerged in our review: naming of the organizations involved (in the IOM definition, "primary care and public health"); articulation of that which is actually being linked or coordinated (in the IOM definition, "programs and activities"); and goal of the integration effort (in the IOM definition, "to promote overall efficiency"). We reviewed the variation in each of these elements to inform our recommended enhancements to the IOM definition.

#### Taxonomy of Integration Interventions

By mapping the classification schemes in our nine included studies to the Jorm et al. classes, we found the use of "functions" in 2 studies, "health issues" in 4, "determinants of health" in 0, "methods" in 7, "settings" in 5, and "resources and infrastructure" in 3. We also noted examples of categories that could comprise subdomains within an existing Jorm et al. domain, rather than a discrete new domain.

# Discussion

#### **Definition of Integration**

Based on our review of the definitions in the included studies, we propose three substantive changes to the IOM definition of integration.

- 1. We recommend that the definition of integration should be more specific in naming the types of organizations participating in integration, but also more inclusive in terms of these types.
- 2. We suggest a slightly more inclusive list of activities that describe the integration itself.
- 3. We suggest that an updated definition specify a broader set of stated goals of the integration efforts than articulated in the IOM definition.

# Our proposed definition is as follows:

Linkage of programs, activities, and information among health care professionals, organizations, and systems and public health (including community-based organizations) to promote overall effectiveness and efficiency of the health system, improve the health and well-being of populations, and protect populations from health threats.

#### Taxonomy of Integration Interventions

**Table 4** presents our revised taxonomy. Overall, Jorm et al. had six classes; we combined two of their classes into one and added three domains—organizations involved, level of integration, and target population. In Table 4, the domains from Jorm et al. are identified by **BOLD** font in the title. **BOLD** indicates the domain was included in Jorm et al. (2009) as a top-level class. Definitions are adapted from

# **Table 4.** Taxonomy Domains for Categorization of Integration Interventions for Purposes of Research and

Jorm et al. (2009).

Domains	Definition	Subdomain Examples
Goals	The purpose of integration interventions	Improving health services delivery (access, quality, cost, equity, which also includes health services delivered by public health agency)  Improving population health/public health practice: program planning, implementation, and evaluation Enhancing data infrastructure and information exchange  Supporting other drivers of the health system: guidelines, policy, workforce, education, and research
Health Issues and Risk Factors Addressed	Health and well-being issues that affect health AND Factors that influence health status and determine health differentials or health inequalities	Chronic diseases (e.g., cancer, diabetes, cardiovascular disease)  Maternal and child health  Immunizations Infectious disease Environmental health Bioterrorism and disaster preparedness Injury  Alcohol and substance abuse  Mental health  Chronic disease risk factors (e.g., nutrition, obesity, tobacco, physical activity)  Social determinants of health
Organizations Involved	The types of organizations participating in the integration intervention	Health care: Individual or group of health care professionals Single practice (for-profit or not-for-profit [e.g., federally qualified health center, free clinic]) Group of practices Hospital Health system Coalition of health systems Health plan Public health: Governmental public health agency Community-based organization Community coalition Educational institution Business
Type of Intervention	The methods that interventions use to achieve the stated goal	No a priori subdomains
Resources and Infrastructure Level of Integration	The means available for the operation of health systems Levels of integration as defined by Himmelman <sup>36</sup> and adapted by the IOM <sup>3</sup>	No a priori subdomains  Levels: isolation, mutual awareness, cooperation, collaboration, partnership, and merger  Specific items of interest maybe in included in the above levels or may be defined separately:

systems; or intraorganizational platform

Settings in which the integration Types of settings: clinical, community organization, schools, workplaces, etc.

Categorizations such as urban/rural

Levels of the social-ecological model <sup>2</sup>

intended recipients or beneficiaries ethnicity)

of the integration intervention

Scope of intervention: local, state, national

Presence of a memorandum of understanding or contract; coalition or advisory body; administrative

At the individual level, further specifications of sociodemographic or other variables (e.g., age, sex, race,

### Conclusion

We present an initial step in developing a new taxonomy of integration interventions among health care professionals and systems and public health organizations. To allow grouping of like interventions to describe them in a standardized way, synthesize findings, and disseminate evidence of intervention effectiveness, researchers, practitioners, and policy makers need a sensible classification scheme that can be applied across integration interventions.

The next step in the development process will be sharing the taxonomy with a broad set of experts for feedback and refinement. To develop the taxonomy further, we will delineate subdomains for the priority domains of intervention types and resources and infrastructure.

We suggest that researchers use the domains in our taxonomy in descriptive studies and evidence syntheses. Even with the taxonomy in this draft stage, we believe that it will be immediately useful to policy makers for providing specificity in guidance to grantees promoting integration interventions.

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